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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
HARTMANN II, KENNETH R	
ART UNIT	PAPER NUMBER
2616	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/23/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/617,884	HARREKILDE-PETERSEN ET AL.	
	Examiner	Art Unit	
	Kenneth R. Hartmann	2616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 July 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-84* is/are pending in the application.

4a) Of the above claim(s) *49-84* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12,14,16-23, 25-36,38 and 40-47* is/are rejected.

7)☒ Claim(s) *13,15,24,37,39 and 48* is/are objected to.

8)☒ Claim(s) *49-84* are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *14 July 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☒ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Detailed Action

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:

   I. Claims 1-48, drawn to a means and method for switching data, classified in class 370, subclass 236.

   II. Claim 49-84, drawn to an interface comprising a means for serializing parallel data, classified in class 370, subclass 366.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and II are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together and they have different designs, modes of operation, and effects (MPEP § 802.01 and § 806.06). In the instant case, the different inventions are unrelated because Group I claims a method and means for switching data using the actual elements and steps that go into the switch, whereas, Group II discloses an interface that comprises a plurality of means for serializing parallel data, which is a more specific element of the invention that is not connected to any claims of Group I.

3. During a telephone conversation with Daniel M. Cavanagh on Mar. 1, 2007 a provisional election was made without traverse to prosecute the invention of a method and means for switching data, claims 1-48. Affirmation of this election must be made by applicant in replying to this Office action. Claims 49-84 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Drawings

4. The drawings are objected to because they do not have descriptive text labels.

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the limitations in claims 7-10 and 31-34 (designated queues for corresponding data packets and alternate embodiments) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

5. In addition to Replacement Sheets containing the corrected drawing figure(s), applicant is required to submit a marked-up copy of each Replacement Sheet including annotations indicating the changes made to the previous version. The marked-up copy must be clearly labeled as "Annotated Sheets" and must be presented in the amendment or remarks section that explains the change(s) to the drawings. See 37 CFR 1.121(d)(1). Failure to timely submit the proposed drawing and marked-up copy will result in the abandonment of the application.

Claim Objections

6. Claims 21 and 45 are objected to because of the following informalities: in line 3, "LU Engine" should be referred to as ---Look-Up Engine--- or "LU Engine" should be referenced immediately after "Look-Up Engine" in claims 20 and 44, respectively, since it seems that "LU Engine" is referring to "Look-Up Engine." Appropriate correction is required.

7. Multiple claims contain the phrase "adapted to," which does not limit a claim to a particular structure, thus the scope of the claim is unknown. It is suggested that applicant remove the "adapted to" phrases and replace them with claim language that would limit the scope of the claims as disclosed in the application.

Specification

8. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

9. The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

Arrangement of the Specification

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

(a) TITLE OF THE INVENTION.
(b) CROSS-REFERENCE TO RELATED APPLICATIONS.
(c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
(d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
(e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.
(f) BACKGROUND OF THE INVENTION.
    (1) Field of the Invention.
    (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
(g) BRIEF SUMMARY OF THE INVENTION.
(h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
(i) DETAILED DESCRIPTION OF THE INVENTION.
(j) CLAIM OR CLAIMS (commencing on a separate sheet).
(k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).
(l) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

The brief summary of the invention discloses all limitations in the elected claims of the invention, however, it seems to simply repeat the claims themselves. The detailed description would be more useful if it were to refer to the limitations in the

claims more clearly, as well as the invention in the drawings. For example, though it is assumed that the arbiter is in some way connected to the devices (which also are not clearly described) in Fig. 1, applicant does not show or say how this connection exists. Also, the limitations of claims 7-10 and 31-34 are not easily understood with the information provided in the detailed description, only with what is found in the brief summary. If applicant is relying on what is found in the brief summary, then this too needs to be fixed because the brief summary reads the same as the claim.

Claim Rejections - 35 USC § 112

10. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

11. Claims 7-10 and 31-34 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

For claims 7-10 and 31-34, as noted above, are described in claim form in the brief summary, however, it is not known how this part of the invention is implemented into the overall invention. Applicant needs to better explain these dependent claims in the written description as well as in the drawings, so that the invention can be understood.

12. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

13. Claims 3-6 and 27-30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

For claims 3-6 and 27-30, the limitations "a highest first, higher data receiving/ transmitting rate" and "highest second, lower data receiving/transmitting rate" are not understood as disclosed in the claims or in the specification, and therefore, are indefinite.

Claim Rejections - 35 USC § 102

14. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

15. Claims 1, 2, 11, 12, 14, 16-19, 25, 26, 35, 38, and 40-43 are rejected under 35 U.S.C. 102(b) as being anticipated by Johnson et al (US 5,822,300).

For claim 1, Johnson et al. disclose a means for switching data, the means comprising: a data bus (Cell Bus, 20, see Fig. 1), a plurality of devices adapted to exchange data with each other via the data bus (SBLKs, 30-1 to 30-6, see Fig. 1) each device being adapted to receive data from and transmit data to at least one corresponding I/O port, at least one first device being adapted to receive data from and

transmit data to a plurality of corresponding I/O ports (data from the media arrives at an SBLK in the form of a packet, the receiving SBLK is also referred to as an input port block, the packet data is fragmented into cells and is either filtered or forwarded to other SBLKs, see column 3, lines 40-45), arbiter means for determining an order of exchanging, on the data bus, of data between the devices (bus controller, 20, see Fig. 1), the devices being adapted to: receive and store data from a corresponding I/O port (following cell reception from the MAC device, cell goes to Cbus TX FIFO, see column 7, lines 32-41), transmit, to the arbiter, information relating to congestion or availability of a corresponding port (cell bus arbitration request, see column 7, line 43-44), receive, from the arbiter, information indicating whether the received data may be transmitted over the data bus transmit, if the information received indicates that the data may be transmitted, the data over the data bus (when arbitration is granted, the Cbus TX DMA transfers the data from the FIFO to the addressed Cbus Rx FIFOs of the destination modules, see column 7, lines 44-46), and receive data from the data bus and forward the received data to a corresponding I/O port (cells arrive at destination module and are prepared to be sent to the MAC device for further downstream medium transmission, see column 8, lines 11-20), the arbiter being adapted to: receive, from the devices, the congestion or non-availability information, and determine the order of exchanging data on the basis of the congestion information (Bus controller controls the bus, see column 3, lines 21-23).

For claim 2, Johnson et al. disclose a means for switching data as disclosed above where a plurality of devices that exchange data with each other directly over the

data bus at substantially the same rate (cell bus is a 32-bit wide bus and is used between SBLKs, see column 3, lines 23-27).

For claim 11, Johnson et al. disclose a means for switching data as disclosed above where an arbiter (bus controller) to receive information relating to each piece of data received at the I/O ports, the information comprising an I/O port and/or a device to receive the piece of data (cell header destination bit map 710, see Fig. 4).

For claim 12, Johnson et al. disclose a means for switching data as disclosed above where an arbiter (bus controller) that will provide to one first device, information relating to which of the corresponding ports is allowed to transmit data (one or more of the destination Cbus RX FIFOs may be congested and the packet will be resent, see column 7, lines 50-51).

For claim 14, Johnson et al. disclose a means for switching data as disclosed above where a first device that determines to which of its corresponding I/O port to transmit data received from the data bus (when a proper packet is assembled it is sent to the MAC device for further downstream medium transmission, see column 8, lines16-20).

For claim 16, Johnson et al. disclose a means for switching data as disclosed above where each device transmits all pieces of data received at the corresponding I/O ports to the data bus (once a complete cell is processed and arbitration is granted, the cell is transferred via the cell bus to its destination, see column 7, lines 39-45).

For claim 17, Johnson et al. disclose a means for switching data as disclosed above where at least one device further comprises a processing means that provide a

priority for each piece of data received at its I/O port (see cell header priority, Fig. 4), divide each piece of data received at its I/O port into cells before transmission thereof to the data bus (cell received at MAC, copied word by word, and sent via the bus to the destination module, see column 7, lines 32-46) and assemble cells received from the data bus into pieces of data before outputting from an I/O port (data cells arrive and are processed before sent to the MAC for further downstream transmission, see column 8, lines 11-20), process each piece of data received at an I/O port (see column 7, lines 34-35), and derive from each piece of data received at an I/O port, information for transmission to the arbiter.

For claim 18, Johnson et al. disclose a means for switching data as disclosed above where the device comprises a processing means for each I/O port of the device (see MAC RX Cell Ring 300-A, Fig. 5).

For claim 19, Johnson et al. disclose a means for switching data as disclosed above a priority is provided for each piece of data received at its corresponding I/O port and where in the arbiter determines the order of exchanging data also on the basis of the priority of the data (see column 4, lines 55-65).

Claim Rejections - 35 USC § 103

16. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

17. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

18. Claims 20-23 and 44-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson et al. (US 5,822,300) in view of Loughran et al (US 6,570,848).

For claims 20, Johnson et al. disclose a means for switching data as disclosed in paragraph 15 of this office action. Johnson et al. do not disclose a Look-Up Engine that receives information relating to each piece of data received at an I/O port and to derive, from the information, identifying information relating to one or more I/O port(s) or device(s) to receive the piece of data. Loughran et al. do disclose a look-up engine (switching engine (19) with LU table (21) and Link Table (22), see Fig. 1) that receives information relating to each piece of data received at an I/O port and to derive, from the information, identifying information relating to one or more I/O ports or devices to receive the piece of data (a look-up request is sent to the switching engine which by means of the look-up table performs a look-up and determines that the packet is intended for port 13, see column 3, lines 41-45). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify/implement the means for switching data as taught by Johnson et al. with the look-up engine as

taught by Loughran et al. since Loughran uses a bus and the switch engine as a controller for the bus. The motivation for including the look-up table as taught by Loughran et al. into the data switching means of Johnson et al. would be to have the destination address available more quickly than having to search for the final destination.

For claim 21, Johnson et al. disclose a means for switching data as disclosed in paragraph 15 of this office action. Johnson et al. do not disclose that each device derives, from each piece of data received, information relating to the piece of data, to transmit the information to the look-up engine, receive identifying information from the look-up engine, and to exchange the identifying information on the data bus together with the piece of data. Loughran et al. do disclose that each device derives, from each piece of data received, information relating to the piece of data, to transmit the information to the look-up engine, receive identifying information from the look-up engine, and to exchange the identifying information on the data bus together with the piece of data (a look-up request is sent to the switching engine which by means of the look-up table performs a look-up and determines that the packet is intended for port 13, the link table sets up the necessary link, by way of control of the data bus, see column 3, lines 41-48). Therefore, it would have been obvious to one of ordinary skill in the art to modify/implement the switching means of Johnson et al. to have each device transmit information to the look-up engine, receive identifying information from the look-up engine and exchange the information on the data bus as taught by Loughran et al. The motivation for this implementation would be the same as that for claim 20.

For claim 22, Johnson et al. disclose a means for switching data as disclosed in paragraph 15 of this office action. Johnson et al. does not disclose the data and identifying information being stored subsequent to receipt of the identifying information and prior to exchange thereof on the data bus. Loughran et al. do disclose the data identifying information being stored subsequent to receipt of the identifying information and prior to exchange thereof on the data bus (switching engine determines the destination port, then sets up the link on the data bus, see column 3, lines 41-48). Therefore, it would have been obvious to one of ordinary skill in the art to modify/implement the switching means of Johnson et al. with the means as taught by Loughran et al. The motivation for this implementation would be the same as that for claim 20.

For claim 23, Johnson et al. disclose a means for switching data as disclosed in paragraph 15 of this office action. Johnson et al. does not disclose a device that on the basis of identifying information, determines whether the data is addressed for the device or not. Loughran et al. does disclose a device that on the basis of identifying information, determines whether the data is addressed for the device or not (since the packet is destined for port 13 but received from port 12, the device knows to send a request to a look-up table since it is not intended for it, see Fig. 1 and column 3, lines 36-45.

Allowable Subject Matter

19. Claims 13, 15, 24, 37, 39, and 48 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art fails to teach a switching means that will check to see if another port is able to send data to its corresponding ports, if a certain port is unable to send data to its destination since that port is congested or not allowing packets to come in.

Conclusion

20. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Tagore-Brage et al. (US 2002/0075886) is cited to show a switching unit that has a ring shaped bus for transporting data packets.

21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenneth R. Hartmann whose telephone number is 571-270-1414. The examiner can normally be reached on Monday - Thursday, 10 - 3 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chau Nguyen can be reached on 571-272-3126. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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